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Voltammetric determination of acetylcysteine in drugs using an electrode modified by an osmium hexacyanocobaltate film

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Abstract

It was established that an inorganic film of osmium(III) hexacyanocobaltate(II) (OHCC) deposited on the surface of a glassy carbon (GC) electrode exhibited catalytic activity for electro-oxidation of acetylcysteine (AC). The catalytic effect was manifested by a greater than 300 mV decrease in the oxidation potential and a many-fold increase in the current of substrate oxidation. The conditions for electrodeposition of the OHCC film on the GC electrode that gave the maximum catalytic effect for AC oxidation were determined. The parameters for the AC oxidation kinetics at this electrode were found. A voltammetric method for AC determination using the electrocatalytic response of the modified electrode was developed. The catalytic current was a linear function of analyte concentration in the range from 5 μM to 5 mM. The proposed method was used to determine AC in drugs. © 2014 Springer Science+Business Media New York.

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Keywords

acetylcysteine, osmium hexacyanocobaltate, voltammetric determination